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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,862	11/12/2003	Tsutomu Ogihara	035576/271443	6724

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EXAMINER

ZEMEL, IRINA SOPJIA

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/706,862	OGIHARA ET AL.	
	Examiner	Art Unit	
	Irina S. Zemel	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3 is/are allowed.
- 6) ☒ Claim(s) 4-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102/103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 4-8 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative under 35 USC 103 (a) as obvious over WO 03/088344 Honeywell International, Inc., (hereinafter "Honeywell").

As discussed in the previous office actions, the references discloses nanoporous films obtained from compositions containing siloxane monomer or polymers precursor (see page 13, lines 5-7), and quaternary ammonium compounds such as tetraethyleammonium acetate. Further, the reference discloses, in example 8, polymerizing silanes in the presence of tetramethylammonium acetate (TMAA), and then, forming films by depositing the solution containing polymerized silanes and TMMA onto a wafer and heating the film. This example is devoid of any porogen. After silane condensation, the resulting intermediate solutions inherently contains silane polymer and unreacted TMAA (catalyst), thus fully meeting the limitations of claims 1 and 6. The film, obviously, may also contain additional components, however those components do not materially affect the properties of the form and, thus, are not excluded by the "consisting essentially" language of the claims. Furthermore, the examiner is of the opinion that the presence of a porogen in the film forming composition, even, if arguendo, may have some effect on the novel characteristics of the composition, does not materially affect the films since the porogen no longer is present in the film.

The reference discloses forming films upon coating on the substrate and heating the disclosed solutions as disclosed in the referenced illustrative example of Honeywell. The burden is shifted to the applicants to provide factual evidence to the contrary.

Further, in respect to claims 6-8, as noted in the previous office action, the claims claim a product obtained by a specified process. As noted above, it is reasonable believed that films obtained in illustrative example 8 are inherently the same as the claimed films. However, it is further believed that the claimed films are similar (not patentable distinct) from the films obtained from solutions containing porogen and removing porogen as discussed in the previous office action. It is further noted that , as per disclosure of the instant application, the claimed films are obtained by heating the films to a temperatures in the range of 450 C, which is well above the decomposition temperature of the quaternary ammonium salt originally present in the film forming solution. Thus, the feature that distinguishes the starting film forming solution is no longer present in the claimed final products or films, just as the porogen disclosed in some of the examples of Honeywell is no longer present in the films. As previously discussed, since the final products are of substantially the same compositions and obtained by similar processes, it is believed that the claimed films (and devices) are not patentable distinguished from the films disclosed in the reference. Again, the burden is shifted to the applicants to provide factual evidence to the contrary.

Further, a discussed at least on two previous occasions, with respect to the film used in the semiconductor device of claim 6, the device of claim 6 is claimed in a "product-by-process" format, and the limitations of claims 6 are met by any film formed

from the claimed composition regardless of the method it was produced. In the methods disclosed in illustrative examples, even if the original prepolymers were low molecular weight precursors, the siloxane prepolymers were polymerized upon heat treatment in the presence of as tetraethyleammonium acetate and inherently resulted in cured films containing high molecular weigh polymer and as tetraethyleammonium acetate, which are substantially the same as the claimed films. (No porogen is present in the films either, as discussed above) Thus, the invention as claimed in claims 6-8 is further anticipated by the illustrative examples discussed above. Once again, the burden is shifted to the applicants to provide factual evidence that the films obtained by the claimed method or from the claimed compositions are materially different from the films disclosed in the cited reference and obtained by the process of Honeywell

The inventions as claimed, thus, is still considered to be unpatentable over the disclosure of the Honeywell reference.

### ***Response to Arguments***

Applicant's arguments filed 9-26-2005 have been fully considered but they are not persuasive. The applicants arguments regarding the film forming compositions and method of their use claimed in claims 1-3 are found persuasive.

However, the arguments directed to the films and the device obtained by the specifically claimed process as claimed in claims 3-8 are not found persuasive.

All of the arguments presented by the applicants are directed to the presence of the of specified amount of the structure-directing agent, or the claimed quaternary

ammonium salt. While the amount of the salt does constitute the this distinguishing feature for the film forming composition claims, the salt, as discussed above, is no longer present in the final films, and the films appear to be of the same composition and structure as those disclosed in the Honeywell reference, discussed above. The applicants were asked on at least two occasions to provide a factual evidence that the claimed films (devices) are different from the films disclosed in the reference. However, (aside of the general discussion in the specification that the films obtained by the claimed method and from the claimed compositions have improved mechanical properties), no factual evidence exists on the record that demonstrates that the films (devices) as claimed are unexpectedly superior to the films disclosed in Honeywell obtained with or without the porogen.

***Allowable Subject Matter***

Claims 1-3 are allowed.

No prior art of record discloses film forming compositions that contain the claimed amount of the quaternary ammonium salt of formula (1) or (2) in the amounts claimed in claim 1. While Honeywell discloses compositions similar to the claimed compositions, the amount of the quaternary ammonium salt contained in the compositions of Honeywell is a small catalytic amount of the ppm order of magnitude with respect to the siloxane polymer in the composition. The claimed amounts are several order of magnitudes higher and well exceed catalytic amounts of quaternary ammonium salt disclosed in Honeywell. No motivation to increase the catalytic amount

to the amount that are at least 100 times higher is provided by the reference or would be reasonably expected by an ordinary synthetic chemist to provide an adequate results.

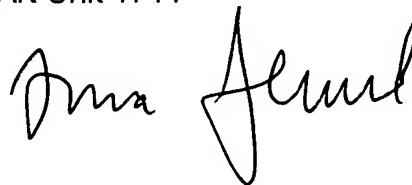
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ISZ

Irina S. Zemel  
Examiner  
Art Unit 1711

A handwritten signature in black ink, appearing to read 'Irina Zemel', written in a cursive style.